Olympus Mons
(P-49343)

This image is a color composite formed from sections of two Mars Orbiter Camera images, acquired with the low-resolution, red and blue wide-angle cameras over a 5-minute period, starting when Mars Global Surveyor was at its closest point to the planet at the beginning of its 24th orbit, on October 20, 1997. A third component — green — was synthesized from the red and blue images. The image covers an area from 12 degrees to 26 degrees north latitude and 126 degrees north to 138 degrees west longitude; north is at the top.

Olympus Mons is the largest volcano in the solar system, rising 25 kilometers (15.5 miles) in height and stretching over nearly 550 kilometers (340 miles) east–west. The summit caldera, a composite of as many as seven roughly circular collapsed depressions, is 66 by 83 kilometers (41 by 52 miles) across. Water-ice clouds are discernible to the right in the image; the clouds accumulate around and above the volcano during the late afternoon. At the time the image was acquired, the summit was at 5:30 P.M. local solar time.

During imaging, the camera was pointed towards the surface, 176 kilometers (109 miles) below the spacecraft. Owing to camera scanning rate and data volume constraints, image acquisition was at a resolution of roughly 1 kilometer (0.609 mile) per pixel.

Mission Overview

Mars Global Surveyor was launched on November 7, 1996, and entered a highly elliptical orbit around Mars on September 11, 1997. The original mission plan called for using friction with the planet's atmosphere to reduce the orbit's size, leading to a two-year mapping mission from close circular orbit beginning in March 1998. Owing to difficulties with one of the two solar panels, aerobraking — the process of circularizing the spacecraft's orbit — has been extended to March 1999. Although global mapping will not begin until then, extensive scientific observations of Mars' northern hemisphere will be made from April to September 1998.

Malin Space Science Systems (MSSS) and the California Institute of Technology built the Mars Orbiter Camera using spare hardware from the Mars Observer mission. MSSS operates the camera from its facilities in San Diego, California. The Jet Propulsion Laboratory's Mars Surveyor Operations Project operates the spacecraft with its industrial partner, Lockheed Martin Astronautics, from facilities in Pasadena, California, and Denver, Colorado.

The Mars Surveyor Program

Mars Global Surveyor is the first venture in the National Aeronautics and Space Administration's (NASA's) Mars Surveyor Program, a new series of missions to explore the Red Planet. The Mars Surveyor Program will launch orbiters and landers every 25 months over the next decade, using advanced technology to develop a comprehensive portrait of Mars.

By studying Mars, the most likely planet for future human expeditions, scientists hope to better understand the formation and evolution of Earth and the inner solar system. This effort — which is affordable, engaging to the public, and of high scientific value — will infuse science, mathematics, and engineering into our nation's educational system. International participation and collaboration further enhance the value of the Mars Surveyor Program.

The Jet Propulsion Laboratory (JPL), a division of the California Institute of Technology, manages Mars Global Surveyor and the Mars Surveyor Program for NASA's Office of Space Science. JPL, NASA's lead center for automated space exploration, provides mission design and navigation, and manages mission operations.

A 34-meter antenna subnetwork of NASA's Deep Space Network tracks and acquires data from all the Mars spacecraft. Lockheed Martin Astronautics is the industrial partner for the Surveyor program.

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